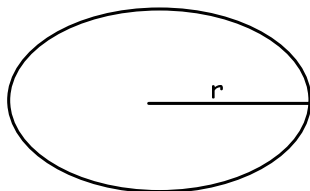


## Guidelines for solving Related Rate problems

1. Identify all the "given" quantities and the quantities "to be determined".  
Make a sketch and label the quantities.
2. Write an equation with the variables whose rates you know or are looking for.
3. Differentiate both sides with respect to time " $t$ ".
4. Plug in everything you know and solve for the missing rate.

A rock is dropped into a lake and forms ripples. The radius of the outer ripple is increasing at a constant rate of one foot per second. When the radius is 4 feet, how fast is the total affected area changing?



| Verbal Statement                                                                  | Mathematical Model |
|-----------------------------------------------------------------------------------|--------------------|
| The velocity of a car after traveling for 1 hour is 50mph.                        |                    |
| Water is being pumped into a swimming pool at a rate of 10 cubic meters per hour. |                    |
| A population of bacteria is increasing at the rate of 2000 per hour.              |                    |

## Homework:

p. 304 1, 2, 5-7, 9-11

Some video tutoring for you...

<http://youtube.com/watch?v=PgK9S37zePE>

<http://youtube.com/watch?v=WIBpPpE-XRg>